REMARKS

Status of Claims and Amendment

Claims 1-8, 20, 21 and 28 are all the claims pending in this application, and are rejected. Claims 1 and 20 have been amended. Claims 8 and 28 have been canceled without prejudice or disclaimer. Claims 9-19 and 22-27 and 29 were previously canceled.

Claims 1 and 20 have been amended to further clarify that the cytokinin receptor is selected from the group consisting of: (a) a cytokinin receptor comprising the amino acid sequence of SEQ ID NO:6; (b) a cytokinin receptor comprising the amino acid sequence of SEQ ID NO:2; (c) a cytokinin receptor comprising the amino acid sequence of SEQ ID NO:4; (d) a cytokinin receptor comprising the amino acid sequence of amino acids 196 to 1176 of SEQ ID NO:2; (e) a cytokinin receptor comprising the amino acid sequence of amino acids 50 to 1176 of SEQ ID NO:2; (f) a cytokinin receptor comprising the amino acid sequence of amino acids 32 to 1036 of SEQ ID NO:4; (g) a chimera-type cytokinin receptor comprising extracellular regions, transmembrane regions and histidine kinase regions, all of which are obtained from the same cytokinin receptor selected from the group consisting of CRE1, AHK2 and AHK3, and receiver regions which are obtained from the histidine kinase encoded by the gene selected from the group consisting of Sln1 gene of budding yeast, Chey gene of Salmonella, RcsC gene of E. coli and Phks gene of fission yeast; and (h) a cytokinin receptor comprising an amino acid sequence that has 95% or higher identity to the amino acid sequence of (a), (b), (c), (d), (e), or (f), wherein said cytokinin receptor has cytokinin receptor activity. Support for the amendments to claims 1 and 20 may be found throughout the specification, for instance, at page 6, line 6 to page 8, line 2, page 10, line 15 to page 11, line 9, paragraph bridging pages 22-23, page 24, lines 3-10, page 26, lines 6-16, and Examples 4-18.

No new matter is added.

Withdrawn Objections/Rejections

Applicants thank the Examiner for withdrawing the rejection of claim 8 under 35 U.S.C. § 112, second paragraph, as being indefinite.

Response to Rejection Under 35 U.S.C. § 112, For Enablement

Claims 1-8 and 28 remain rejected under 35 USC 112, first paragraph, as allegedly lacking enablement for the reasons of record and the following reasons.

The Office Action appears to assert that Applicants' argument that "claims having scope broader than the exact amino acid or nucleotide sequence disclosed should not be rejected under the enablement requirement of 35 U.S.C. § 112, first paragraph" was not found to be persuasive because the Office Action disagrees with Applicants' interpretation of the *Ex parte Kubin* decision. The Office Action asserts that the enablement issue in *Kubin* centered around whether there was sufficient guidance in the specification and in the prior art for creating and screening 80% homologous mutants to the NAIL protein (Kubin at 10-11), and the BPAI considered the *Wands* factors to establish the level of predictability in the relevant art and determine whether undue experimentation would have been required to practice the full scope of the claimed invention. The Office Action asserts that the analysis by the BPAI in *Kubin* is nothing more than a restatement of the factors applied in *In re Wands*, and that the BPAI did not set forth any holding, statement, or dicta, to suggest that claims with scope broader than the exact amino acid or nucleotide sequence disclosed should not be rejected under the enablement requirement. Thus, the Office Action asserts that Applicants' argument that the instant claims should not be rejected under 35 U.S.C. § 112, first paragraph, enablement, is not supported by *Ex parte Kubin* or other case law.

With regard to claim 8, subparts (g) and (h) and claim 28, the Office Action has found Applicants' arguments and amendments to not be persuasive because Applicants did not separately or specifically address the rejections of claim 1-7. In this regard, the Office Action appears to assert that claims 1-8 and 28 encompass a broad genus of generic "cytokinin receptor genes" and variants, and that neither the specification nor the art provides sufficient guidance regarding the full scope of the claimed cytokinin receptors. Also, the Office Action asserts that conservation of structure is not necessarily a surrogate for conservation of function and that in the present case, no guidance provided as to the correlation between structure and function.

Initially, Applicants note that the Board of Patent Appeals and Interferences in *Ex parte Kubin* assessed the Examiner's finding of lack of enablement to the "at least 80% identity language" in claim 73 and concluded that even in light of the *Wands* factors, the scope of claim 73 was enabled by the specification which "provide[d] extensive guidance for creating and screening mutants. In this respect, the BPAI explicitly recognized that the specification in *Kubin* taught "in detail how to: 1) make variants of SEQ ID NOs: 1 and 2; 2) calculate the percent identity between SEQ ID NOs 1 and 2 and the variant sequence; and 3) test the variant sequence to determine if it binds to CD48." See page 11 of *Kubin*. Similar to *Kubin*, the present specification provides guidance as to how to make the variants of SEQ ID NOs: 2, 4, and 6 or a chimera-type cytokinin receptor (for example, page 10, line 15 to page 11, line 9, last line of page 21 to page 26, line 16 of specification), calculate the percent identity between SEQ ID NOs: 2, 4, and 6 and the variant sequence (for example, page 11, line 10 to page 12, line 2 of specification), and test the variant sequence to determine its cytokinin receptor activity by examining the intracellular signal transduction (see page 28-29 of specification) and the agonist- or antagonist-activity (see page 30-34 of specification). Thus, although *Kubin* contains no

explicit "holding, statement, or even dicta" that claims having scope broader than the exact amino acid or nucleotide sequence disclosed should not be rejected under the enablement requirement, such an interpretation is clearly surmiseable from the holding of *Kubin* because the BPAI *reversed* the Examiner's finding of lack of enablement to the polynucleotide of *Kubin* encoding a "polypeptide at least 80% identical to amino acids 22-221 of SEQ ID NO:2, wherein the polypeptide binds CD48."

Nevertheless, and solely to advance prosecution of the present application, claim 1 has been amended to further clarify that the claimed cytokinin receptor is selected from the group consisting of (a) a cytokinin receptor comprising the amino acid sequence of SEQ ID NO:6, (b) a cytokinin receptor comprising the amino acid sequence of SEQ ID NO:2, (c) a cytokinin receptor comprising the amino acid sequence of SEQ ID NO:4, (d) a cytokinin receptor comprising the amino acid sequence of amino acids 196 to 1176 of SEQ ID NO:2, (e) a cytokinin receptor comprising the amino acid sequence of amino acids 50 to 1176 of SEQ ID NO:2, (f) a cytokinin receptor comprising the amino acid sequence of amino acids 32 to 1036 of SEQ ID NO:4, (g) a chimera-type cytokinin receptor comprising extracellular regions, transmembrane regions and histidine kinase regions, all of which are obtained from the same cytokinin receptor selected from the group consisting of CRE1, AHK2 and AHK3, and receiver regions which are obtained from the histidine kinase encoded by the gene selected from the group consisting of Sln1 gene of budding yeast, Chey gene of Salmonella, RcsC gene of E. coli and Phks gene of fission yeast; and (h) a cytokinin receptor comprising an amino acid sequence that has 95% or higher identity to the amino acid sequence of (a), (b), (c), (d), (e), or (f), wherein said cytokinin receptor has cytokinin receptor activity.

Claims 8 and 28 have been canceled. Accordingly, the rejection with regard to claims 8 and 28 is rendered moot.

Reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, first paragraph, is respectfully requested.

Response to Rejections Under 35 U.S.C. § 112, for Written Description

1. Claims 1-8, 20, 21, and 28 remain rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement, for the reasons of record and for additional reasons similar to the reasons set forth above for the enablement rejection.

In response, Applicants note that for the reasons discussed above and as previously argued, the claimed sequences and method of making variants of the claimed reference sequences is conventional in the art. Thus, one of ordinary skill in the art possessing common technical knowledge would understand from reading the specification, that Applicants were in possession of the presently claimed invention at the time the invention was made.

Nevertheless, and solely to advance prosecution of the present application, claim 1 has been amended to further clarify that the claimed cytokinin receptor is selected from the group consisting of (a) a cytokinin receptor comprising the amino acid sequence of SEQ ID NO:6, (b) a cytokinin receptor comprising the amino acid sequence of SEQ ID NO:2, (c) a cytokinin receptor comprising the amino acid sequence of SEQ ID NO:4, (d) a cytokinin receptor comprising the amino acid sequence of amino acids 196 to 1176 of SEQ ID NO:2, (e) a cytokinin receptor comprising the amino acid sequence of amino acids 50 to 1176 of SEQ ID NO:2, (f) a cytokinin receptor comprising the amino acid sequence of amino acids 32 to 1036 of SEQ ID NO:4, (g) a chimera-type cytokinin receptor comprising extracellular regions, transmembrane regions and histidine kinase regions, all of which are obtained from the same cytokinin receptor selected

from the group consisting of CRE1, AHK2 and AHK3, and receiver regions which are obtained from the histidine kinase encoded by the gene selected from the group consisting of Sln1 gene of budding yeast, Chey gene of Salmonella, RcsC gene of E. coli and Phks gene of fission yeast; and (h) a cytokinin receptor comprising an amino acid sequence that has 95% or higher identity to the amino acid sequence of (a), (b), (c), (d), (e), or (f), wherein said cytokinin receptor has cytokinin receptor activity.

Claims 8 and 28 have been canceled. Accordingly, the rejection with regard to claims 8 and 28 is rendered moot.

Reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, first paragraph, is respectfully requested.

2. Claims 8 and 28 are rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement on page 8 of the Office Action.

As discussed above, because claims 8 and 28 have been canceled, the rejection with regard to claims 8 and 28 is rendered moot.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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